

City of Redmond WATER QUALITY REPORT

Y O U R D R I N K I N G W A T E R



SUMMER 2015

PWS ID: 71650B



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CITY OF REDMOND

all about your drinking water

Reliable and high quality drinking water is essential for our community. Redmond is committed to protecting our supply, maintaining the city's water system, and planning for future years of service. Our commitment is demonstrated through our on-going water system improvements and dedicated operators and engineers.

In this annual report, you will learn where your drinking water comes from. You'll learn what is in the water and how it is protected, treated and monitored. You will also learn about ways we all can help to conserve and protect our drinking water.

Thank you for your interest in Redmond's water resource and our efforts to keep it safe and clean, now and in the future.




Mayor John Marchione

INFORMATION FROM THE EPA

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and can pick up substances resulting from the presence of animal or human activity.

Substances and contaminants that could be present in source water include:

Microbes such as viruses and bacteria, which may come from septic systems, livestock, and wildlife.

Inorganic chemicals such as salts and metals, which may be naturally-occurring or result from urban stormwater runoff, wastewater discharges, and farming.

Pesticides and herbicides from agriculture, urban stormwater runoff, and residential uses.

Organic chemicals both synthetic and volatile, which are by-products of industry and can also come from gas stations, dry cleaners, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or result from petroleum production or mining activities.

In order to ensure the safety of tap water, the EPA regulates the amount of contaminants allowed in public drinking water. The FDA regulates the contaminants in bottled water, which must provide a similar degree of safety.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons — such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

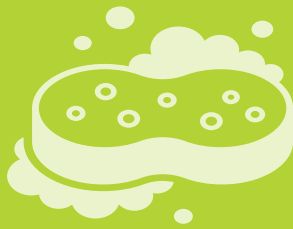
DID YOU KNOW...



101° F (38° C)
is the average
shower
temperature

when water freezes

**it expands
by 9%**



Sponges hold more
cold water than hot

Toilets use
35%
of indoor water

Sound travels
**4.3 times
faster**
through water
than in air



WHERE DOES MY WATER COME FROM?

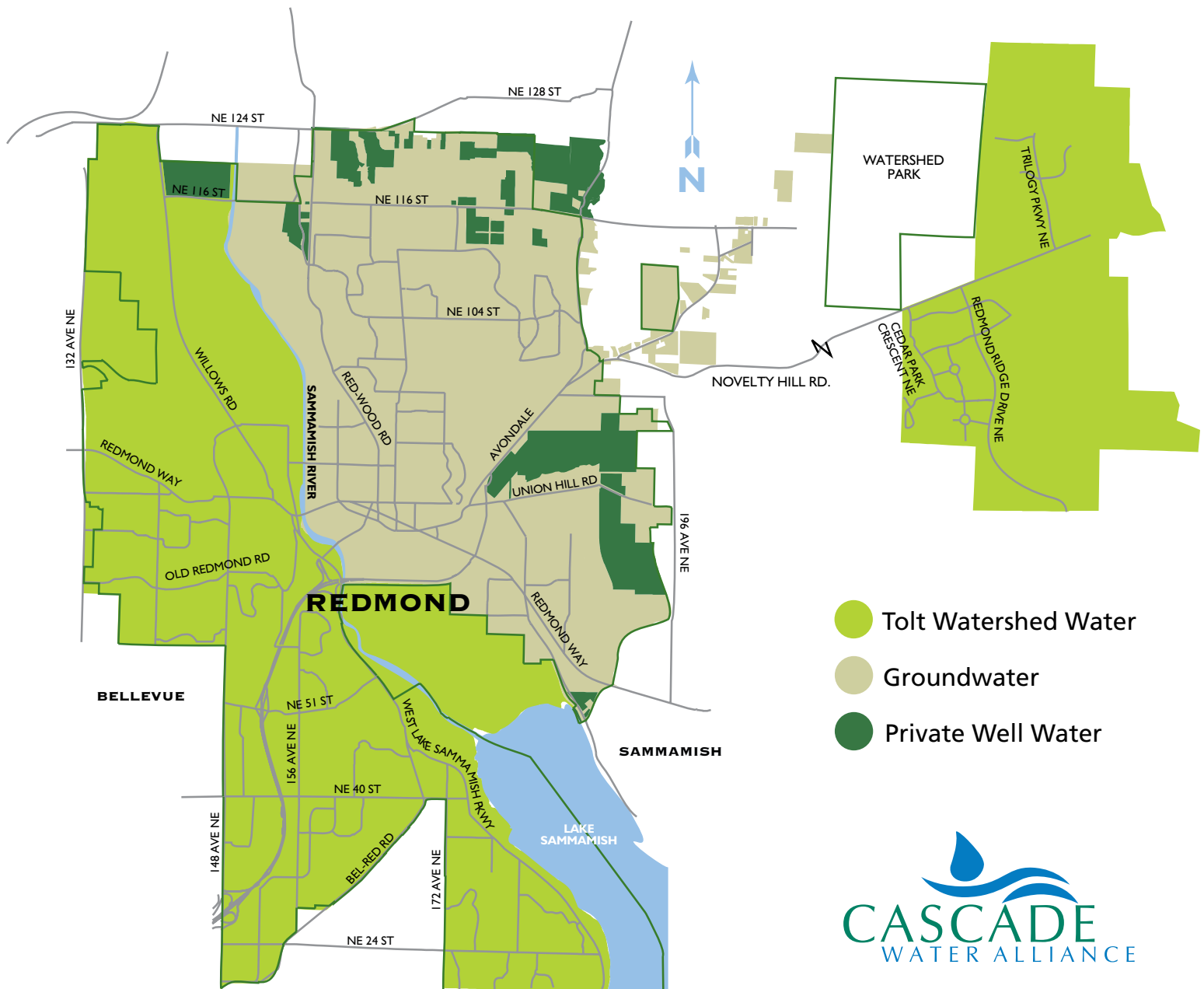
The City of Redmond has a hybrid water system. You may drink water from the Cascade Mountains or well water from an aquifer, depending on where you live.

THE TOLT WATERSHED

Residents on the west side of Lake Sammamish and the Sammamish River, and those who live in Redmond Ridge and Trilogy are served water that comes from the Tolt Watershed in the Cascade Mountains.

THE GROUNDWATER SYSTEM

Residents east of Lake Sammamish and the Sammamish River drink well water from our aquifers. During the summer, water from the Tolt will be blended with the groundwater to help meet peak summer demand.





THE TOLT WATERSHED

From the Cascade Mountains to your tap

The Tolt Reservoir and Watershed are located 15 miles east of Redmond in the Cascade Mountains. Rivers, streams, and snowmelt are impounded here to make up the reservoir supply. The water is filtered and treated and then travels through a supply pipeline to Redmond and other eastside water districts on its way to Seattle. The City of Seattle owns the Watershed and pipeline. Redmond, as a member of the Cascade Water Alliance, buys this water and both Seattle and Redmond monitor and test it to maintain quality.

Watershed Protection

The Tolt Watershed covers nearly 14,000 acres and is closed to public access. Seattle's aggressive watershed protection plan safeguards the water supply from degradation

and human intrusion. However, according to the State Department of Health, all surface waters in Washington State are given a contamination susceptibility rating of "high" whether or not contaminants have been detected. Contamination that might occur would most likely be from soil erosion or animal activity.

Treatment

Water treatment of the Tolt supply consists of filtration, ozonation, chlorine disinfection, and fluoridation. Calcium oxide and CO₂ are added to help reduce the water's natural corrosive effect on plumbing. Filtration removes organic material and makes the water cleaner and clearer. Ozone kills tough potential pathogens like giardia and cryptosporidium.

2014 WATER QUALITY DATA—TOLT SYSTEM

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average	Range	MCLG	MCL	
FLUORIDE	ppm	0.8	0.7 - 0.9	4	4	Additive for dental health
TURBIDITY	NTU	0.07	0.05 - 0.28	NA	TT	Soil runoff
TTHM	ppb	27.4	12.1 - 49.4	NA	80	Chlorination by-products
HAA5	ppb	33.4	17.0 - 43.6	NA	60	Chlorination by-products
CHLORINE	ppm	0.83	0.10 - 1.41	NA	4 MRDL	Additive that kills germs
BARIUM	ppb	1.2	(one sample)	2000	2000	Erosion of natural deposits
NITRATE	ppb	0.11	(one sample)	10	10	Erosion of natural deposits
TOTAL COLIFORM	% positive	0%	0 out of 621	0	5%	Naturally present in environment
Untreated Water						
TOTAL ORGANIC CARBON	ppm	1.2	1.1 - 1.4	NA	TT	Naturally present in the environment
CRYPTOSPORIDIUM	#/100L	ND	ND	NA	NA	Naturally present in the environment

MCLG (maximum contaminant level goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

MRDL (maximum residual disinfectant level)

MCL (maximum contaminant level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

NTU (nephelometric turbidity unit) A measurement of water clarity. High turbidity can interfere with disinfection.

PPM (Parts Per Million): 1 ppm = 1 mg/l

PPB (Parts Per Billion): 1 ppb = 1 ug/l

TT (treatment technique): A required process intended to reduce the level of a contaminant in drinking water.

NA Not Applicable

OTHER USEFUL TOLT DATA

• Water Hardness = 27.7 mg/l or 1.6 grains per gallon. *This water is soft.* • pH = 8.1 – 8.6 • Alkalinity 17.7 mg/L

A list of other contaminants that were not detected, are secondary or unregulated, is available upon request.

THE GROUNDWATER SYSTEM

Redmond's renewable resource

In Redmond, east of the Sammamish River, there are underground, water-bearing formations called aquifers. For 60 years the aquifers have supplied 35% of Redmond's drinking water. In 2013, the City's wells pumped 907 million gallons from the aquifers. This resource is considered to have a high vulnerability to potential contamination because the aquifers are extremely shallow.

Groundwater Protection

In 2003, Redmond established a Wellhead Protection Program as a way to help protect our groundwater from contamination and depletion. The Wellhead Protection staff is responsible for:

- Gathering hazardous materials data and visiting businesses to help identify and eliminate sources of pollution that could contaminate groundwater.
- Reviewing development proposals to ensure that groundwater will not be adversely impacted.

- Measuring groundwater levels and collecting samples from monitoring wells throughout the City.

As a result of the Wellhead Protection Program, Redmond is in compliance with the three components of the State's Source Water Assessment Program: Protection Area Delineation, Contaminant Source Inventory, and Susceptibility Assessment. To learn more, contact Amanda Balzer at abalzer@redmond.gov or call 425-556-2753.

Treatment

Our groundwater is treated for safety and dental health with two common drinking water additives: sodium fluoride and chlorine. Chlorine acts as a safety net against disease causing germs. The well water is adjusted for optimum pH. At most wells we use air stripping towers which release CO₂ from the water as a way of raising the pH. At Well #4, sodium hydroxide is used. Increasing the pH makes the water less corrosive to household plumbing.

2014 WATER QUALITY DATA—GROUNDWATER SYSTEM

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average	Range	MCLG	MCL	
FLUORIDE	ppm	0.7	0.53 - 0.85	4	4	Additive to promote dental health
NITRATE	ppm	0.85	0 - 1.6	10	10	Erosion of natural deposits
TTHM	ppb	17.9	12.2 - 25.8	NA	80	Chlorination by-products
HAA5	ppb	9.6	5.4 - 15.2	NA	60	Chlorination by-products
CHLORINE	ppm	0.64	0.10 - 1.28	NA	4MRDL	Additive that kills germs
TOTAL COLIFORM	% positive	0%	0 out of 663	0	5%	Naturally present in environment
BARIUM	ppb	1.25	0 - 5	2000	2000	Naturally present in environment
CHROMIUM	ppb	.5	0 - 2	100	100	Naturally present in environment

MCLG	(maximum contaminant level goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
MRDL	(maximum residual disinfectant level)
MCL	(maximum contaminant level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
NA	Not Applicable

NTU	(nephelometric turbidity unit) A measurement of water clarity. High turbidity can interfere with disinfection.
PPB	(Parts Per Billion): 1 ppb = 1 ug/l
PPM	(Parts Per Million): 1 ppm = 1 mg/l
TT	(treatment technique): A required process intended to reduce the level of a contaminant in drinking water.
TTHM	(total trihalomethane): Disinfection by-products
HAA5	(Haleoacetic acid): Disinfection by-products

OTHER USEFUL GROUNDWATER DATA

• Hardness = 60-90 mg/l (4-5 grains per gallon) *This water is moderately hard.* • pH = 7.5 – 7.9 • Alkalinity = 85-90mg/l

A list of other contaminants that were not detected, are secondary or unregulated, is available upon request.

KEEPING THE LEAD OUT

What you can do to help

There is no detectable lead or copper in any of the sources of Redmond drinking water. However, lead is a serious contaminant and can be found in the water of some homes due to older plumbing.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.

The City of Redmond is responsible for providing high quality drinking water, but cannot control the variety of materials used in residential and commercial plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your cold water tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline, 800-426-4791, or www.epa.gov/safewater/lead. You can also get information from the Redmond Water Quality Office at 425-556-2800.



2014 LEAD AND COPPER CITYWIDE MONITORING PROGRAM

Compounds & Units	MCLG	90th Percentile Action Level*	90th Percentile Residential Level	# of Homes Exceeding Action Level*	Sources
LEAD (ppb)	0	15 ppb	3 ppb	1 out of 36	Corrosion of household plumbing
COPPER (ppm)	1.3 ppm	1.3 ppm	Not Detected	0 out of 36	Corrosion of household plumbing

* ACTION LEVEL The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Since 1983, Redmond's drinking water has been treated to minimize corrosion in the home. A citywide monitoring program began in 1992, which tested water in homes most likely to have plumbing components with lead. Since that time, only 10 of 398 samples have exceeded the action level (15ppb) for lead. The next monitoring program will begin in June of 2015.

CROSS CONNECTION CONTROL PROGRAM

The purpose of a Cross Connection Control Program is to keep unsafe water from mixing with the potable water supply. Redmond's Water Quality Office maintains a database of assemblies installed throughout the City. We monitor all testing and send customers an annual reminder notice. Your efforts in performing required testing is essential in protecting your drinking water.

Backflow Testing

If you have an irrigation system for your yard, fire suppression sprinkler system, boiler, pool/spa, or water feature, state law requires that you have a backflow prevention assembly installed to prevent contaminated water from flowing back into your drinking water—a serious health hazard.

Backflow assemblies fail for a variety of reasons. That's why state law requires them to be tested annually by a certified tester—to ensure that the assemblies will function if there is a backflow event.



Garden hoses can be hazardous to the water quality in your home.

To prevent backflow and keep your water safe DO NOT:

- Submerge a garden hose into anything that you would not want to drink.
- Use hose-end applicators to apply garden chemicals to your yard. When not in use, keep the hose bibs on the house in the “off” position. The spray nozzle at the end of the hose is not a safe shut off.

Protecting against potentially harmful backflow incidents is an important part in providing high quality drinking water. Redmond strives to provide the highest quality water to our customers, and protecting against potentially harmful backflow is a very important part of this effort. If you have any questions about the Cross Connection Control Program and testing of backflow assemblies, contact Michael Matthews at 425-556-2847 or mmatthews@redmond.gov.



2014 ANNUAL WATER USE

The Redmond Water Utility is pleased to provide you with its annual performance report. This report, which is required by the Washington State Department of Health (DOH) Water Use Efficiency Rule (WUE), includes information about our metering status, our distribution system leakage and progress made toward our water efficiency goals.

Metering and Distribution Leakage Summary

The Redmond water system is fully metered. The state requires that water suppliers maintain their distribution system leakage at 10% or less for a rolling 3-year average. The state recognizes that a certain amount of leakage is expected and unavoidable. The leakage is based on the total water produced by the wells and purchased from Cascade Water, less the amount of water sold to customers and used for other system purposes like flushing and fire fighting. The estimated total leakage for Redmond for 2014 was 6.55% and the rolling 3-year average is 5.5%, well within the state DOH leakage standard.

Efficiency Performance Report

DOH is now allowing Cascade Water Alliance (Cascade) to establish a goal that includes all seven of its members, including Redmond. The new water efficiency goal, which must be updated every six years, was established by Cascade on December 19, 2013, for years 2014 through 2019. Cascade's goal is to achieve a cumulative drinking water savings of 600,000 gallons per day on an annual basis and 1,000,000 gallons per day on a peak season (June – September) basis by 2020.

Cascade provides water efficiency programs and services on behalf of its members. In 2014, Cascade administered 15 distinct activities including:

- Showerhead and aerator installations at commercial accounts
- Residential gardening classes
- Irrigation system upgrade rebates
- Classroom presentations on water topics
- Leak detection dye mailed to all single-family homes
- Free online ordering of shower timers, rain gauges, and other conservation items
- Water audits at King County Housing Authority properties
- Free conservation items shipped to multifamily properties
- Training for landscape contractors, parks and school district staff, and others on the fundamentals of efficient irrigation management
- Development of a WaterSense Labeled New Homes program for builders

As shown in Table 1, these programs and services resulted in approximately 12,000 direct customer interactions promoting water efficiency and a savings of an estimated 178,459 gallons of water per day; or, 29.7% of Cascade's 2014 – 2019 WUE goal.

2014 CASCADE WATER EFFICIENCY PROGRAM

Measure or Activity	Completed	Savings (Gallons/Day)
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Community

Irrigation Evaluations	40	
Cascade Gardener Classes	32	
Cascade Gardener Attendees	700	
Rainwater Harvesting Projects	3	
Classroom Presentations	423	
Students Reached	10,509	
Road Shows	16	
Customer Interactions	4,700	
Irrigation Trainings	10	
Indoor Audits	101	

Savings Generated

Residential Leak Detection Mailer	82,847	106,097
Web Page Conservation Items	622	622
Road Shows Conservation Items	12,563	12,563
Multifamily Showerheads	200	900
Multifamily Bathroom Aerators	200	460
Multifamily Kitchen Aerators	178	409
Commercial Aerators	300	12,900
Commercial Showerheads	2,150	37,776
PreRinse Spray Valves	36	4,932
Irrigation Projects	9	1,800
Total Savings		178,459

REDMOND PARTICIPATES IN FEDERAL WATER SAMPLING PROGRAM

In 2014, the City of Redmond collected water samples under the Unregulated Contaminant Monitoring Rule 3 (UCMR3). Redmond and approximately 6,000 other public water systems were selected to collect samples, based on population size served, not because of a water quality concern. The Environmental Protection Agency (EPA) utilizes the UCMR3 program to collect data for contaminants expected to be present in drinking water, but that do not have defined health-based standards.

EPA required Redmond and other water providers to test for 30 contaminants as part of UCMR3. Of those, one was found (see chart). Chlorate is a known byproduct of the drinking water disinfection process when utilizing sodium hypochlorite. UCMR efforts are ongoing into 2015.

If testing shows that a large number of drinking water systems have detected any specific contaminant at levels of concern, the EPA may decide to regulate them in the future.



2014 TEST RESULTS FOR UNREGULATED CONTAMINANTS – UCMR3

	Range	Average
Chlorate	ND-69	26.8 ug/L
Ug/L = Microgram/liter		
ND = Non Detection		

If you would like a full list of contaminants tested for but not detected, or more information about Redmond's results, please contact the Water Quality office at 425-556-2847. For more information about the program, visit EPA's website at water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/

PROTECTING OUR GROUNDWATER

What you can do to protect your drinking water

The best way to protect our drinking water is to make sure pollution does not get into the environment around us, especially in the Critical Aquifer Recharge Areas (CARA).



Dispose of Hazardous Products Properly

Items such as used motor oil, oil-based paint, cleaning solvents, fuels, antifreeze, transmission and brake fluid, and pesticides and herbicides should never be dumped on the ground or into a stormwater drain. For more information on proper disposal of hazardous materials visit King County's Local Hazardous Waste Management Program website at www.lhwmp.org.



Limit your use of chemicals, fertilizers, pesticides, and other hazardous products

Use the least toxic products or methods available. Over application or misuse can cause these chemicals to make their way into surface water and groundwater. For more information, visit King County's website on Natural Yard Care www.lhwmp.org/home/gsgs.



Properly Maintain Your Septic System

If you have a septic system, pump it out on a regular basis (every three years depending on the tank and family size). Household hazardous wastes should never be flushed or put down the drain. This includes strong acids or bases, petroleum products, solvents, heavy metals and pesticides. For more information contact Public Health - Seattle & King County District Office at 206-296-4932.



If you own or operate a business in Redmond, evaluate your hazardous materials handling process

- Properly store products and waste, both indoors and outdoors, utilizing secondary containment (a container to catch spills or leaks from the original container).
- Be prepared for spills. Have a spill kit and spill procedures in place and train employees how to use them.
- Keep lids on dumpsters and waste bins stored outside.
- Minimize use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals.
- For additional information on hazardous materials storage and handling or environmentally safer alternatives, contact our Wellhead Protection Pollution Prevention Specialist staff at 425-556-2714.



BE VIGILANT

If spills occur, clean them up immediately. Call Redmond's 24-hour Spill Hotline at 425-556-2868 to report spills.

wellhead
protection



ADDITIONAL INFORMATION

**Redmond Public Works
Water Quality Office**
[www.redmond.gov/environment/
drinkingwater](http://www.redmond.gov/environment/drinkingwater)
425-556-2800

Washington Department of Health
www.doh.wa.gov/ehp/dw
800-521-0323

Environmental Protection Agency
www.epa.gov/safewater
Safe Drinking Water Hotline
800-426-4791

American Water Works Association
www.drinktap.org
www.awwa.org

Redmond Wellhead Protection Program
www.redmond.gov/environment
425-556-2701

GET INVOLVED

It's your drinking water and your input is important. Attend and comment at City Council meetings on the first and third Tuesday of the month at 7:30 pm in the Council Chambers, located at 15670 NE 85th Street. Agendas for the meetings can be found on the City's website (www.redmond.gov) or posted in the lobbies of City Hall and the Public Safety Building.

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***If you have questions about this report or about your drinking water, please contact Redmond's
Drinking Water Quality section at kcaldwell@redmond.gov or lmward@redmond.gov.***

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

"本报告含有饮用水问题的重要信息。请人翻译或与懂英文的人交流一下。"

이 보고서에는 식수에 관한 중요한 정보가 담겨있습니다



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